



Prince Abdullah Bin Abdulaziz Science Park (PASP)

Feasibility Study Report and Development Strategy

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The Vision

To make a significant contribution to the wealth & welfare of the Kingdom of Saudi Arabia through the development of knowledge based companies that will also strengthen the achievement of the mission of KFUPM to be a leading institution in the creation and dissemination of knowledge in its chosen fields of study

To create an environment within the university that will forge closer ties and enduring links between academia and the industry; together spanning a spectrum of research and development frontiers for technological and economic growth.

The Mission

To develop a financially self-sustaining physical and operational entity designed to create wealth through the commercialization of scientific and technologic knowledge from KFUPM and related organizations; fostering technology development and commercialization from the laboratory to the marketplace; development of an entrepreneurial culture amongst faculty, graduates of KFUPM and managers potentially spinning out from local enterprises; providing technical, business, managerial, intellectual property and financial advice to clients; providing flexible space in an incubator and science park buildings with flexible leases, property management services, access to university facilities; and above all, the creation of a self sustaining and self supporting community of knowledge based companies, university, research institutes and other relevant organizations.

Overview

Introduction

With forty years since its establishment, King Fahd University of Petroleum & Minerals approaches its fifth decade against a backdrop of significant and far-reaching achievements. During this period, the university has successfully adapted to the phenomenal changes that have overtaken and revolutionized the educational, industrial and economic sectors. This has been most evident over the last decade with the advent of the Information Age and its subsequent impact on these sectors. This influence is characterized by the ongoing global transition from industrial economies to knowledge-based economies. In this present model, intellectual property is a coveted asset; a single intelligent idea if effectively capitalized upon, can alter the economic scenario. Often commercial success is defined by one's capability to transform such new ideas and knowledge into business products and services most rapidly and efficiently. Given this condition, there has been a need for merging the erstwhile distinct roles of university and industry in development and implementation of new technologies. Strategic alliances between these two entities creates a mutually beneficial relationship, where the university gains from the practical experience and exposure to cutting-edge technologies, while the industry can tap into the institution's often vast facilities and talent pool such as students and faculty.

Following this model, KFUPM is adding a new aspect to its continuous effort to enhance its international reputation maintaining its high standards of academic performance, research and innovative leadership in the region. KFUPM is in the process of commencing a strategic and ambitious initiative to chart its future development. It plans to move into its fifth decade with a strong and effective collaboration with local, regional and international industries that would span over their common research and development interests. Such a partnership would be an alliance between the university, the government, business enterprises, and the Research & Development industry. The objective would be to create a dynamic environment drawing together the best intellectual minds, their innovative research and the latest technologies in a wide number of areas. This new far-reaching initiative is the Prince Abdullah Bin Abdulaziz Science Park (PASP).

Beyond being simply a common platform for technology transfer among its entities, the PASP will also host an incubator program for promoting private start-up companies and entrepreneurs. The university will reach a negotiated agreement whereby it will provide the land-area for the science park

The Prince Abdullah Bin Abdulaziz Science Park (PASP) is to be established in 2003. Located on a 75-acre site in the north of the King Fahd University of Petroleum &

Minerals (KFUPM) main campus, the park will be closely integrated with the university. The location with its proximity to science and engineering colleges provides for considerable interaction between tenant firms, their personnel and university scientists and engineers.

The park will house a range of firms, mainly those involved in the petroleum and chemical industry and the growing IT sector, both of which are major strengths of the university. The first development phase of the park, which is expected to be completed by 2004, will be leased to companies interested in maintaining close links with the university community as well as with other Saudi Petroleum and IT-based industries. At present, there are three companies that have expressed willingness to join the park. These three - Schlumberger, Ciba, and JCCP presently share research interests with the university and are located in its Research Institute (RI).

With five more companies to sign up with the commencement of the science park, a significant figure of approximately 20 companies is expected by the end of 2005.

In addition to providing land, infrastructure, PASP offers unique opportunities and incentives for start-up companies through specialized growth environments in the park's technology incubator. Companies that outgrow this initial start-up environment can be housed as tenants in the science park. An incubator and multi tenant building, which will also house PASP's central administration and communal facilities

The development model for the park is based upon partnership between PASP Ltd and external organizations that bring access to finance and complementary skills. The KFUPM brings its great resources in intellectual skills and access to specialized equipment and scientific facilities and its land, whilst the outside organizations (including Government) bring capital, commercial knowledge and political support. The various partners will share ownership in proportion of the contribution that they make, in cash and in kind.

The firm will derive returns from the land, from building rent paid by tenant firms and from its consulting activities. The park's management and administration will be through a limited company with a board of directors made up of representatives of government, university, business and a managing director, the majority coming from the university as well as the Chairman of the board.

Goals & Objectives

The primary goals of instituting a science park within KFUPM are:

- To forge a strong collaboration between the university and industry in the areas of research and development, and to create value out of it, through the creation and the management of a community of companies, scientists, businessmen in the oil and IT sectors.
- To promote small technology-specific businesses and start-up enterprises through a business incubation program.
- To direct significant technology-driven foreign investment and presence in the eastern province and the Kingdom.

The university's underlying purpose for a Science Park goes a significant step beyond the fairly usual concept of developing an elite business complex. Instead, the need for providing a commerce and research driven exchange platform between academia and industry is stressed. The means to achieve this within the framework of the above goals can be visualized through the following objectives:

- Commercialization of research, both in terms of focusing the university's endeavours towards commercially feasible areas of study as well as minimizing the transition period between technological innovation and its commercial deployment.
- Presenting the university and the Kingdom to the international community as a significant player in high-end research and innovation.
- Providing a strong point of presence for major international companies and enterprises thereby channelling world-class technology and practice into local and regional businesses.
- Providing incubator programs to promote emerging small-businesses and enterprises with the much-required technical, financial and administrative support.
- Utilizing the industrial presence for the benefit of students and faculty members, thereby providing significant real-world exposure that will enhance their academic performance.
- Generating employment opportunities for students during their course of study and upon graduation in these businesses.

Activities

The above goals and objectives can be achieved through a wide sphere of activities and joint ventures between the industry and the university. Some of these collaborative steps and their importance are explained below:

- Joint research projects, especially industry-linked projects sponsored by government or fully funded by private industrial clients, bringing researchers and scientists from the university and industry together on a common platform. This would bring the foremost technologies and industrial practices into an academic perspective.
- Technology transfers allowing tenant industries to commercially deploy and utilize university patents and copyrights
- Technology scouting and technology monitoring services provided by the university to the industries through the PASP
- Work experience programs for undergraduate students during their course of study. This would provide the much-needed industrial exposure and experience.
- Industry research projects for graduate and doctoral students. Such collaborations would help identify commercially viable areas of research and development.
- Mentoring opportunities for management students. These tenant firms could provide administrative and accounting internships.
- Consulting activities provided by management faculty members to tenants and external companies through PASP, including market studies, business development
- Financial services and/or business mentoring provided by venture/seed capital organizations and business angels to tenants and incubated start up companies, through PASP
- Sharing of KFUPM's equipment and laboratories. Both start-up companies located in the incubator sector, and established firms would have access to the university's academic, research and leisure facilities under well-defined terms and conditions, both convenient for companies and profitable for KFUPM, negotiated by PASP on behalf of KFUPM.
- Custom-designed management and technical education programs for tenant companies. Such courses can be administered in the form of short-courses or part-time degree programs.
- Courses about entrepreneurship, SME management, case studies presented by testimonials with first hand experiences, offered to most of the students, independently on their disciplines, in order to stimulate new entrepreneurial vision and enthusiasm in the young generation.
- Inclusion of senior management and technical personnel from tenant firms onto the university advisory boards. Their contributions would be important factors in the redesign and establishment of courses and programs.
- Adjunct appointments of industry experts as faculty and researchers in the university.

Strategic Directions

From the goals and objectives that were outlined in the previous section three primary areas of strategic thrust can be identified:

1. Collaboration between university and industry: It is anticipated that the close interactions between these tenant companies and the university scientific bodies will create a knowledge intensive innovation and market driven collaborative community providing enhanced opportunities for both entities in their technological development, deployment and transfer endeavours.
2. Nurturing start-up companies and enterprises: An incubation program within the science park will promote nascent enterprises and entrepreneurial efforts by allowing access to the university's research, development and administrative support facilities as well as access to capital and managerial skills (through VC, business angels and KFUPM Management Faculty members) and to markets (through business development and international partnerships development consulting activities provided by PASP)
3. Channelling new global technologies and practices into the Kingdom: The presence of established international companies and the subsequent collaborative research with the university will provide local and regional industries insight into the latest technological practices and innovations.

Stakeholders and Benefits

The primary stakeholders in the development and sustenance of the science park are:

- The University
- The Research Institute
- Tenant firms and enterprises
- Investors and Private Start-up Companies
- The Government

Each of these stakeholders plays a vital role in the development and growth of the science park. Correspondingly, each of them has individual interests and potential benefits to be achieved through PASP. These are listed below:

Benefits to KFUPM

- A further enhancement of the strong international reputation in academic and business circles for its high standards of education, research and innovative leadership.
- Increase of KFUPM and RI revenues in contract research, education and consulting activities thanks to the close links and collaborative efforts between the science park's businesses and tenants and the university's faculty, researchers and students.
- Improvement of the worldwide KFUPM visibility and attractiveness, necessary to attract and retain the best in faculty and research.
- The presence of International major companies and enterprises will help keep the university abreast of the latest technological, industrial and market trends and developments. Undergraduate and graduate programs could be modified to reflect these changes.
- Significant student absorption into these businesses, both during their course of study and upon graduation.

Benefits to Tenant firms and enterprises

Tenants are local, regional and international companies who presently have a market presence in the Kingdom, or desire to achieve it. Emphasis will be laid on companies involved in Petroleum-based sector as well as high-end Information Technology, which are the two main significant strengths of the University although the emergence of clusters in other (perhaps yet unknown) technologies will be encouraged.

- Tenant companies will achieve a significant point of presence in the region especially from an R&D perspective,
- Prestige and reputation : for oil related businesses, to be present with a facility in Saudi Arabia in a science park of a centre of excellence in oil research is a very important benefit in terms of prestige and reputation
- Convenient economic terms and conditions for access to the research infrastructure at KFUPM such as laboratories, library resources, supercomputing facilities at the Research Institute, faculty consultation:

access to such facilities will allow tenants to drastically reduce the fixed asset investment for companies at both incubation and science park level.

- Access to a community of businessmen, technologists, managers, consultants and venture capitalists sharing the same professional interest in oil or IT, in the same place at the same time, with the PASP management committed to stimulate and nurture such a community
- Availability of a skilled work-force pool from graduate and undergraduate students.
- Assistance in identifying university programs and resources that best relate to the company's research program.
- Adjunct faculty participation for key company employees.
- Opportunity for commercial deployment of university's proprietary patents and innovations. The terms and contract for this would be negotiated through PASP's Technology Transfer Office.
- Access to the University's advanced educational and training programs for company employees.

Benefits to Investors and Private Start-up Companies

- Venture Capital companies can find in the PASP tenants and incubated companies an interesting reservoir of projects to be evaluated for their direct investments .
- Private start-up companies would have access to the incubator program at PASP, which would provide a stable growth catalytic effect. This is in addition to other research and development facilities as available to other tenants.
- Prestige, reputation, access to infrastructures and to the systems of relationships in both oil or IT sector already described above, will be important benefits also for small start up companies in the PASP incubator
- Developing companies would benefit from the mentoring, investment and marketing support that established larger companies could provide.

Benefits for the Government

The Government of Saudi Arabia will benefit from its funding and participation in the activities of PASP (for instance through the nomination of one member in the board of directors) because this initiative helps the achievements of the Government policy aimed to enhance the competitiveness of the national economy.

In fact, PASP will contribute to improvements in the added value and the knowledge intensiveness of industrial activities in the Kingdom, will generate jobs and will improve the worldwide reputation of the Kingdom in terms of excellence in oil and IT sectors, both from knowledge and economic point of view

Funding & Finance

The wide advantages and benefits of the science park make it a mutually beneficial endeavour for the University and the Industrial sector. Given its ideal location and the explicit returns for the Industry, it is proposed that the running costs of the park should be entirely covered by revenues from the private investments (tenants), of the consulting/technology transfer, of part of the profit made by research activities marketing and management on behalf of KFUPM, rather than through government funding. This would not only give the university independence from this huge task, but also would be a measure of the Industry's interest and initiative in the project. Under this model, the university would be a privileged decision member responsible for laying down standards and leasing tenants while maintenance and construction would be the responsibility of a private sector enterprise.

However, the PASP company will be enjoying enough revenues only when the tenant and incubated companies are fully operative and fully paying their rental fees, and when consulting activities income will be enough developed to cover their fixed production costs (human resources, fixed assets, etc.) : a fixed sum of starting capital will definitely need to be provided in order to cover the costs in the early operating stages; this should be regarded as an investment to produce future benefits rather than a subsidy.

Under the proposed financial system, the University will provide the land-area for the science park and its great resources in intellectual skills and access to specialized equipment and scientific facilities and its land, whilst the outside organizations (including Government) bring capital, commercial knowledge and political support. The capital will be used to cover the start up costs of the initiative.

The various partners will share ownership in proportion of the contribution that they make, in cash and in kind.

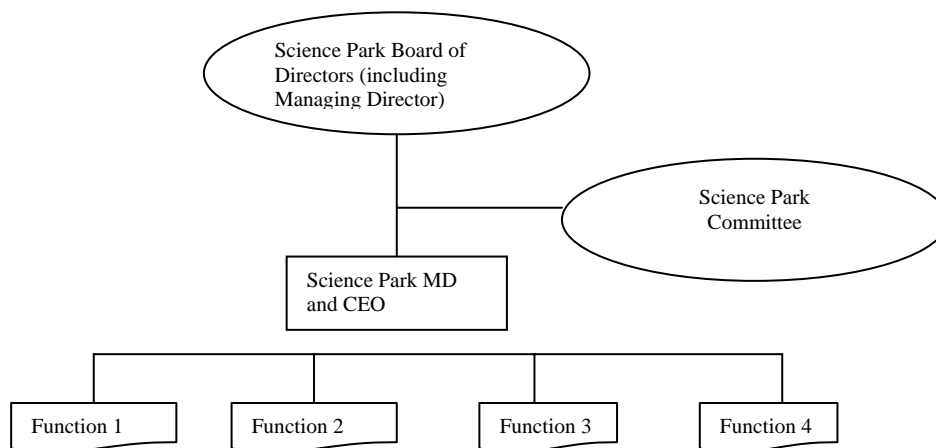
Further funds could be sourced from individual tenant firms through their 'Saudi Offset' programs. As per this program, foreign companies entering the Kingdom commit a certain investment in the country. One of the major companies that the science park planning committee has been in touch with is DevCorp, which with its experience in funding and managing such projects has expressed interest to collaborate with the university and secure funding for the program.

Governance & Management

The effective management and governance of the science park is based on the collaboration between three major parties: the university, industry, and the government. The prerogatives of each of these entities as per their relation to the science park are as follows:

- Regulations, incentives and accreditation from the government
- Knowledge and resources from the university
- Capital, revenues and access to markets from the industry

It is proposed that the park will be managed as a business enterprise in which the above three entities would have a share. The university will provide the land-area for the science park, leasing the same to a private enterprise or to a tenant for construction and development. The park's management would be overseen by a Board of Directors, the members of which will be drawn from the government, university and business. The Rector of the university will Chair this Board and KFUPM will hold the majority of shares and seats on the Board. PASP's Managing Director, as a board member, will advise on the determination of the Board's strategies, policies and objectives and, as Chief Executive Officer, will be responsible to the Board for their implementation with the assistance of a team of executives and other support staff. This team would exercise sufficient power and control to allow for flexibility and easy adaptation to change.



Thanks to this governance framework, from one side there is no risk that PASP, as an independent company controlled by the KFUPM, will ever be operating against the interests of KFUPM itself and from the other side, being a market driven venture open to private capital with a minority governmental participation, will never be perceived as a purely academic institution.

Conclusion

There is a broad consensus among experts on the factors that contribute to the success or failure of university-related science parks. These can be placed in two categories:

- Factors associated with the site, its size/ location, as well as with the availability of a strong scientific and technological reputation in one or more well-defined areas. This also includes the university's inclination to contribute and gain from developing relationships with industry and markets.
- Factors associated with the university's administration and sponsoring of the project.

From these two categories, the various factors that can greatly impact the development and growth of the science park are:

- Leadership, ownership, governance, commitment and involvement of all concerned parties for effective implementation of the plan.
- The plan should be based on clear objectives, well integrated with the long-term vision, mission and goals of the university, agreed with private and governmental partners.
- The location of the science park with regards to proximity with other buildings and offices such as engineering colleges, administration offices etc, should allow for close interaction between the tenant firms and the university.
- Clear details about the university policy, its main research interests and the financial commitment should be provided to clarify any questions about tenant participant criteria.
- A clear management structure with a Park Managing Director appointed at an early stage of development with entrepreneurial skill , high degree of freedom, significant authority on park affairs
- Often the vision and enthusiasm exists among the management of the firms, but may not be shared by the staff that would represent the company in the science park. The administration and the Park Director should promote interaction between these personnel and university scientists and engineers through regular seminars and briefings.

In its forty years, the King Fahd University of Petroleum & Minerals has achieved national stature as an eminent learner-centred research institution. Through strategic planning, the university has always strived to address changing conditions, capitalize on new opportunities, and achieve challenging goals. These strategies have always focused on the mission to promote economic growth and development in the Kingdom by supporting manpower training, technology transfer and innovative research and development through sustained productive partnerships

The Prince Abdullah Bin Abdulaziz science park is a strong statement of KFUPM's determination to maintain these high standards in research, technological development and academic excellence. It is an initiative to couple the university's resources and talent with the technological capabilities of the industrial sector, thereby creating a highly collaborative environment with vast potential for joint technological research and development. Besides this mutual relationship between the university and established companies, the science park will promote local and regional private start-up enterprises and entrepreneurs through its incubation program. A committee comprised of representatives from the university, government and industry will jointly manage the science park. Funding will be primarily from private investors, with the university providing the land-area.

With the establishment of this science park, KFUPM moves forward into its fiftieth year with a far-reaching initiative that will be a dynamic catalyst for technological development and collaboration between the university and the industrial sector.